DOCUMENT RESUME

ED 048 743 EM 008 800

AUTHOR	Newren, Edward F.
TITLE	The United States-Japan Science Film Exchange Project: An Interim Report.
INSTITUTION	Minnesota Univ., Minneapolis. Coll. of Education.
PUB DATE	71
NOTE	45p.; Paper presented at the Annual Meeting of the Association for Educational Communications and Technology (Philadelphia, Pennsylvania, March 22-26, 1971)
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	Evaluation, Evaluation Methods, *Exchange Programs, Films, *Instructional Films, Interinstitutional Cooperation, *Science Education, Science Materials
IDENTIFIERS	*Project United States Japanese Film Exchange

ABSTRACT

The objective of this project, now in its final stages, was to determine the benefits to science education, at various academic levels, from the exchange of science films between the United States and Japan. In the three years of the project (1967-70), the United States sent 265 films and received 180 films. The films were evaluated by each of the participating countries prior to the exchange and then reevaluated by the receiving country. In the United States, the reevaluation process consisted of two phases. In phase one, the films were evaluated mainly by professionals at the higher education level--content specialists, audience level specialists, and production specialists. In phase two, the films were evaluated by science teachers and their students. While all the data from both phases has not been compiled, indications are that the photography and overall quality of the Japanese productions are good and that there is much understanding of Japanese culture and media techniques to be gained from the exchange. Though the content of these films is often not specifically geared to U.S. curricula, they are quite useful as supplementary materials or for in-depth individual study or enrichment, rather than traditional classroom instruction. Lists of the Japanese and American film titles are appended. (JY)

ED048743

THE UNITED STATES-JAPAN SCIENCE FILM EXCHANGE PROJECT:

AN INTERIM REPORT

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

Edward F. Newren

Assistant Professor

College of Education - Audiovisual Laboratory

University of Minnesota

Paper Delivered in the "Research Papers Session:

Media Effectiveness and Dissemination."

Association for Educational Communications and Technology

Annual Convention

Philadelphia, Pennsylvania: 1971

EM 008 800

U.S.-Japan Science Film Exchange Project:
A Cooperative Research Venture

I. Purpose

The objective of this Film Exchange Project is to determine what benefits can be derived for science education, at various academic levels, from the exchange of quality science films between the United States and Japan.

II. Background

The United States-Japan Cooperative Science Program was generated out of discussions between President John F. Kennedy and Prime Minister Hayato Ikeda in 1961. Recognizing the importance of expanding educational, cultural, and sciencific cooperation between the two countries, these national leaders formed committees to search for a means of establishing and strengthening international cooperation between the two participating countries. The Cooperative Science Program is one of the means developed. It is based upon shared support, and emphasizes activities of common scientific interest.

The U.S.-Japan Science Film Exchange Project, a three-year cooperative venture, was developed out of this United States-Japan Cooperative Science Project under the category of "Education in the Sciences." In the United States, the "implementing agency" is the National Science Foundation (NSF) and the Science Film Exchange Project is administered by the American Science Film Association (ASFA). The U.S. Project Director is Dr. Malcolm S. Ferguson, Reference Section, Audio Visual Department, National Library of Medicine and Executive Vice-President of ASFA; the Assistant Investigator in charge of the U.S. evaluative phase of the project, is Edward F. Newren, Assistant Professor, College of Education, Audiovisual Laboratory, University of Minnesota. In Japan, the Japan Society for the Promotion of Science is the sponsor and the project is administered by the National Science Museum. Directing the Project for Japan is Dr. Kiyoshi Sugie, former Director, National Science Museum and assisting is Mr. Soichiro Tsuruta, Chief, Department of Programs, National Science Museum.

Four international conferences of the Project, two in each of the participating countries, were held in the Springs of 1967, 1968, 1969 and 1970 to specify responsibilities, develop procedures, review progress and results, and set operational goals.

At these conferences, it was agreed that the participating countries would, each year of the project, select, obtain, and ship to each other between 1,000 and 1,500 minutes of film.[1] Although 16 millimeter was to be the predominant format, it was also agreed that some 8 millimeter cartridge films and video tapes should also be exchanged. Initially, the maturity level of the materials was to be at the secondary school level. The word "science" used to describe the content of the films exchanged is defined and interpreted broadly to include physical, biological, and applied technical science areas. At the outset of the project, it was decided, however, that "social science" films would be excluded. Over the ensuing years of the project's existence, the maturity level has been expanded to include some items at the elementary as well as the college and adult levels and the content areas were enlarged, for receipt by Japan, to include items dealing with scientific method applied to engineering as well as films on the American Indian--while the United States requested films in the additional areas of medicine, anthropology, archaeology and social sciences as well as dentistry and orthodontics. The breakdown of exchanged films was to be proportioned at about 20 percent cultural science films for the general public and 80 percent in science films for classroom instruction and public viewing.

During the three years this cooperative project has been in existence, the following number of media units have been exchanged:

---

1. See Appendices 4 and 5.

TABLE 1

U.S.-Japan Science Film Exchange Project:
Units of Media Exchanged 1967 to 1970

Country	Media Format			Total Units Exchanged*	Total Running Time in Minutes
	16mm	8mm	Videotape		
United States	193	63	9	265	4,048
Japan	133	36	11	180	3,664

*What appears to be a larger exchange contribution of total number of media units by the U.S. is due to the fact that the United States science films tend, generally, to be shorter in length than the Japanese motion pictures, and because ASFA forwarded a larger number of 8mm cartridge films.

III. Commentary on the Selection of Exchanged Science Films

Each of the participating countries organized committees to review and select the films to be sent to the other country. The Japanese selected many of the films they would send by screening the prize-winners from their film festivals as well as utilizing the science competencies and expertise of the selection committee members they had assembled. The United States used review committees comprised of science specialists who met at the ASFA office, evaluative reports from the preview and screening programs of some prominent United States university film libraries, as well as winning titles from some of the U.S. film festivals such as the CINE Golden Eagle awards.

Selections from both countries were based on a variety of factors - quality of presentation, technical quality in the film's production, subject matter (attempting to give broad coverage to the wide spectrum of science as a whole), maturity level of the media's intended viewing audience, and other "understandings" arrived at during the various Project conferences.

IV. Japan's Evaluative Findings of the U.S. Science Films

Generally, it was felt that the U.S. films have many points in content and technique which Japan should adopt.

The Japanese noted that the U.S. science films were more likely to have the instructor "on-camera" than are the Japanese films, and the appearance of "American faces" on the screen tends to be a distraction to the Japanese students--particularly those from rural areas. However, the Japanese viewers were impressed with this display of "humanity"--scientists appearing chiefly in the PSSC films--and felt that these films motivate viewers to further study.

As a general rule, the Japanese felt that the films produced in their country in the areas of biology and biochemistry tend to exhibit greater patience--more footage devoted to--and quality in photographic technique than do the U.S. films. This they felt affected their perception and evaluation of the U.S. films.

The curriculum-oriented films produced in the U.S. appear to have their greatest value in Japan for training and retraining science teachers. With many U.S. films, the early introductory portion is more useful to Japanese students than are the later, more detailed sequences--Japanese students seem to "get lost" in the detailed portions. This may be the result of differences in teaching methodology or a result of inadequate detail.

The ideas received from scenes of experimentation and phenomena in U.S. films are felt to be very useful and help to form basic concepts. (Examples: Frames of Reference, Straight Line Kinematics, Random Events, Coulomb's Law, Electrochemical Cells, Crystals and Their Structures, Chemical Families, Acid-Base Indicators.)

Good illustrations, effective use of animation, and greater clarity because of the use of models were noted. (Examples: Principle of Electricity, Electrochemical Cells, Catalysis, Nitric Acid, Gas Pressure and Molecular Collisions.)

It was believed that the U.S. films aimed at better understanding of basic concepts, theories, and equations and in fact were understood by the Japanese students; however, the presentation in many instances appears to be too rapid and with too much or inadequate verbal explanation--some of which is due to the advanced content of some of the films in regard to the viewing audience's abilities. (Examples of theories and equations which are explained well: Frames of Reference, Principle of Electricity, Electrochemical Cells, Random Events, Periodic Motion, Straight Line Kinematics, Gas Pressure and Molecular Collisions. Examples of theories and equations which are explained too rapidly and in so many words as to make understanding difficult are: Crystals and Their Structures, Catalysis, Ionization Energy, Equilibrium, Universal Gravitation, Coulomb's Law.)

The conclusions made by a group of Japanese film producers concerning the U.S. films included high praise for the CHEM Study and PSSC films; also, Assignment: Shoot the Moon from NASA because of the scarcity of such material. It was indicated that the mathematics films proved very interesting since there are very few of these kinds of films in Japan--particularly interesting was the film, Infinite Acres. Also, they noted, with appreciation, the unique experiments shown in Formation of Raindrops and Planetary Circulation.

V. A Brief Summary of the U.S. Procedure for Handling the Evaluation of the Japanese Science Films

To determine the quality and usefulness of the Japanese science films for science education in the United States, a two-phase evaluation program has been initiated. In Phase One, the films have been evaluated across the country, mainly by professionals at the higher education level--content specialists, audience level specialists, and production specialists. These evaluations were coordinated by persons with experience in audiovisual education as well as science and science teaching. Phase Two is designed to get these films into the hands of those who can provide meaningful evaluation and reactions as to the films' strengths and weaknesses for science education--science teachers and their students.

Objectives of the Evaluation Process

A. Primary

1. To secure the needed film information in a manner consistent with currently acceptable and subscribed to film evaluation practices--while at the same time adhering to the constraints imposed by budget and working within the parameters of the other identified limitations.

B. Intermediate

1. To provide basic information about the 16mm films for use by the Project's sponsoring agency as well as by the members engaged in the administration of the film exchange project's routine procedures.
2. To enable exchange of evaluative information with the Japanese counterpart in this cooperative venture.

C. Terminal

1. To provide a basis upon which to assess the quality and usefulness of the 16mm films received by the United States.
2. To provide a basis upon which to assess the feasibility of continuing the project beyond the dates stipulated for the project.

3. To provide the essential information needed by science instructors and other interested groups in order to make knowledgeable selections and requests for use of the films.

The Evaluation Program

A. Elements

1. Standardization of procedures so that undisrupted continuance of the evaluative process may be maintained and also that concurrent operations at various locations may be undertaken.

2. Operation of program in two phases

a. Phase One - To facilitate the attainment of the intermediate objective: obtaining basic evaluative information; and the primary objective.

b. Phase Two - To facilitate the attainment of the terminal objective: obtaining information needed for the assessment of the project's value and for providing detailed information to prospective film users; as well as the primary objective.

B. Evaluators

1. Phase One Evaluation

a. Number and Competency of Evaluators--A minimum of three specialists (one in each of the areas described below by roles and duties), with primary emphasis on the professional ranks at the higher education level.

b. Roles and Duties

(1) Content Specialist (Determines accuracies, omissions, errors, up-to-datedness, etc., of films' content.)

(2) Audience Specialists (Determines the suitability of the films for the intended audience; that the films meet the needs and interests of the intended audience; and that the length, pacing, and vocabulary of the films are appropriate, etc.)

(3) Technical Specialist (Determines the quality level of the films' photography, sound, continuity, etc.)

(4) General (Determines if this is the appropriate medium for the intended communication, best material available, best method of presentation, most financially economical, most worthy of time consumed, etc.)

2. Phase Two Evaluation

a. Number of Evaluators--Limited only by the ability of ASFA (or designated agency) to disseminate the films to potentially, as well as self-designated interested viewers. Primarily, this phase is designed to retrieve evaluative information from teachers and students who would normally use these kinds of instructional materials.

C. Procedure

1. Phase One: Coordinators will select and secure evaluations from evaluators. These evaluations will be synthesized into one report per film.

2. Phase Two: Interested individuals who are sent films for screening purposes, whether they have initiated the request or the interest has been generated by ASFA, will be requested to provide--on a form supplied by ASFA--an evaluation of the film(s) sent. It will be an objective of high priority to secure student reactions to these materials during their use in this phase of the evaluation process. This procedure of evaluation is designed to provide a continually expanding file of evaluative information primarily dealing with the contribution of these project films as they pertain to in-the-field use.

3. Definitions

a. Specialist - Any person on or above the graduate level with specified competence because of previous (or current involvement) training and experience in the area of science with which a particular film deals or in the area of film production and/or audiovisual education. In Phase One, this would, for the content specialist, be a professor in science at the higher education level; for the audience specialist, this would be a professor in science education methods at the higher education level; for the production specialist, this would be a production specialist or his equivalent in audiovisual education at the higher education level.

b. Interested Science Specialists for Phase Two - Any person who has at least a bachelor's degree with a major in science and who is currently involved in the teaching of science, or working in a capacity which brings him in contact with science students at the elementary, secondary, or higher education level(s).

c. Coordinator - Any graduate level person with previous (or current involvement) training and experience in the area of film evaluation and science.

D. Sample Evaluation Forms (See Appendix 1)

E. Product

1. Phase One: The final product of this phase will be a typed report containing bibliographical, content, utilization and appraisal information.

2. Phase Two: The product of this phase will be the evaluations accumulated and summarizing the in-the-field teacher and student reactions to the films.

3. Project: The final product of the exchange project will be a published descriptive/analytic catalog of the Japanese films received and evaluated by the United States. It is intended that this publication will include as its basic contents bibliographical information obtained from the films and also from the film distributors (See Appendix 3), the information generated in Phase One and Phase Two, synthesized and presented to indicate usefulness of these films for "in-the-field" utilization.

4. Sample of Report Form for Presenting the Information Obtained in Phase One (See Appendix 2).

VI. A Descriptive Analysis of the United States Project's Evaluative Findings Concerning the Japanese Science Films

One hundred and fifty-eight media units were received from Japan for evaluation in this project. Actually there were 180 pieces since several of the 8mm films have more than one film to a numbered title. The number of media units which to date have been available for evaluation (narrated in English or translated) is 132. As of this time 95 units have been evaluated in Phase One of the project--81 sixteen millimeter films and 14 eight millimeter films (actually 34 single titles and individual films within the series titles). In the Phase Two of the project 49 sixteen millimeter films have been evaluated. The number of media units currently out for evaluation in Phase One amounts to thirty-seven--26 sixteen millimeter films and eleven video tape recordings. Currently there are 25 sixteen millimeter films out for Phase Two evaluations. The number of media units not available for evaluation, as of this date (no translations, damaged, etc.), totals 26. See Table 2.

TABLE 2

STATUS OF MEDIA UNITS RECEIVED BY U.S. FROM JAPAN *		
Status	Number	Approximate Percent
Media Units Received From Japan	158 **	100
Media Units Available for Phase One Evaluation from Total Units Received	132	84 (of the 180)
Media Units Already Evaluated for Phase One from Units Available	95 **	60 (of the 132)
Media Units Available for Phase Two Evaluation from Units Evaluated in Phase One	67	71 (of the 95)
Media Units Already Evaluated for Phase Two from Units Evaluated in Phase One	49	73 (of the 67)
Media Units Currently Out for Phase One Evaluation from Units Available for Phase One	37	28 (of the 132)
Media Units Currently Out for Phase Two Evaluation from Units Evaluated in Phase One	25	37 (of the 67)
Number of Media Units not Available for Evaluation At This Time From Those Units Received From Japan	26	16 (of the 158)

* Current as of March 1, 1971

** See Appendix 5

In Table 2 above the 49 films for which Phase Two evaluations have been obtained have in fact received 89 reports altogether. The number of films which have been sent out for Phase Two evaluations and which have been returned amounts to 107. The total number of Phase Two requests equals 355 or an average of 5.4 requests for the 67 films available. To date we have collected an average of 1.8

Phase Two evaluations per available film. Many films are out for Phase Two evaluations at this time. Also some films have not received a Phase Two evaluation as of this date.

The U.S. evaluative findings, in general, indicate that the photography of the Japanese productions is quite good, however, the animation leaves something to be desired. Also the content of these films is frequently not specifically germane to U.S. curricula, indicating that some of these films might be more useful for in-depth individual study and/or enrichment than in the traditional classroom instruction. Certainly, those films will be a beneficial supplement to U.S. science films dealing with the same content. It has been noted by our evaluators that some of the Japanese films duplicate U.S. productions. Of these Japanese films with U.S. equivalents, there are some which are considered by our evaluators as far better and some which are not equal to the quality of the U.S. films. Also our evaluators have noted production (possibly cultural) oddities in the Japanese films for which no immediately available explanation can be found (e.g. #6, Life Is Born, a gong rings intermittently throughout the film without apparent reason, also in this same film the sound track switches from English to Japanese narration about halfway through the production).

You will note on the first and second page of the "Evaluation Form" (See Appendix 1) that some of the indexes of the films quality are denoted from the evaluative ranking given to the film for its "content," "audience suitability," "structure," "picture quality," and "photographic technique," as well as an overall summative ranking. Table 3 below provides an indication of the films which were considered very strong or very weak by the evaluation specialists in the Phase One evaluations. Sufficient data has not been collected in Phase Two, up to this point, to allow for a meaningful comparison.

TABLE 3

EXCEPTIONALLY STRONG OR WEAK JAPANESE SCIENCE FILMS

A Breakdown of Basic Ratings * Obtained on

Media Units ** Evaluated in Phase One

(Based on a 5 point Scale--e.g. Low 1 2 3 4 5 High)

Rating Category	OVERALL		CONTENT		AUDIENCE SUITABILITY		STRUCTURE		PICTURE QUALITY		PHOTOGRAPHIC TECHNIQUE	
Average Rating of All Units	4.0		4.1		3.9		4.0		4.3		4.0	
High-Low Ratings	H	L	H	L	H	L	H	L	H	L	H	L
Title Number ***												
3	X		X		X				X		X	
4	X				X				X		X	
6			X					X	X		X	
8	X						X		X		X	
11	X		X		X		X				X	
14			X						X			
20	X								X		X	
24									X		X	
25			X						X		X	
26	X		X				X		X		X	
27		X		X				X				
28		X						X				

* H or "high" Rating = 5; L or "Low" Rating = 1 or 2

** Those media units receiving a 3 or 4 rating not included

*** See Appendix 5

Table 3 Continued

Rating Category	OVERALL		CONTENT		AUDIENCE SUITABILITY		STRUCTURE		PICTURE QUALITY		PHOTOGRAPHIC TECHNIQUE	
High-Low Ratings	H	L	H	L	H	L	H	L	H	L	H	L
Title Number												
31	X		X		X				X			
32	X		X								X	
33										X		
34											X	
35					X				X			
36									X		X	
38											X	
39			X									
40		X		X				X		X		X
41											X	
46		X				X		X				X
48						X						
49		X		X		X						
51									X		X	
52									X		X	
55		X										
58											X	
59		X		X		X		X		X		X
60									X		X	
62	X		X		X		X		X		X	
63	X		X				X		X		X	
64									X		X	
66									X		X	

Table 3 Continued

Rating Category	OVERALL		CONTENT		AUDIENCE SUITABILITY		STRUCTURE		PICTURE QUALITY		PHOTOGRAPHIC TECHNIQUE	
High-Low Ratings	H	L	H	L	H	L	H	L	H	L	H	L
Title Number												
68									X		X	
70	X		X				X		X		X	
73		X						X		X		X
74								X				
76		X			X							
77		X		X		X		X				X
82	X		X		X		X		X		X	
83	X											
84	X								X		X	
85	X								X		X	
87					X				X		X	
91									X		X	
101		X										
102		X										
103		X										
108	X											
121									X			
140										X		
145											X	
149	X		X		X		X		X		X	

Sixteen, or approximately 40% of the forty films rated "high" (5 points) in one or more categories (e.g. content, structure, picture quality, etc.) are narrated in English--this is 57% of the total number of 16mm films (28) that are narrated in English. Of the 16 films rated " high" (5 points) in the "Overall" category, half (8) are narrated in English--or 50% of the 16 films. Only twenty-four or 23% of the Japanese narrated films were rated "high" (5 points) in one or more categories--of these 24 Japanese narrated films only 8 or approximately 33% were rated in the "high" (5 points) "Overall" category. It would appear that the language in which the film is narrated is either integral to the value of the film or that the evaluators of these films are biased by the English narration--or possibly both of these factors are operating.

Of the 55 exceptionally strong or weak films 8, or 15% of Table 3--8% of all films evaluated--had "high" ratings in 4 or more categories; 14, or 25% of Table 3--or 15% of all films evaluated--had "high" ratings in three or more categories. Conversely, 1 or 2% of Table 3--or 1% of all films evaluated--had "low" (1 or 2 points) ratings in 5 categories; 4 or 7% of Table 3--or 4%of all films evaluated--had "low" ratings in four or more categories; seven or 13% of Table 3--or 7% of all films evaluated--had "low" ratings in three or more categories. When we look at the "Overall" category, 17 or 30% of Table 3--or 18% of all films evaluated--were rated "high" (5 points); 13 or 24% of Table 3--or 16% of all films evaluated--were rated "low" (1 or 2 points). Thus, the bulk, approximately 43%, of the remaining films (25) were rated as "average" (3 points) or "good" (4 points). It would appear that despite the language in which the films are narrated, the U.S. evaluators confirm that the quality of the Japanese science films received, generally speaking, is quite good.

Some additional information, which is of interest, concerning the Phase One evaluation process, concerns data collected from the Coordinators. When the coordinators were asked the question, "What is the ease in obtaining cooperation

from prospective evaluation specialists for Phase One evaluations?" they rated--on a five point scale--the ease for obtaining cooperation from each of the three types of evaluation specialists as follows: Content 3 1/3; Audience 3 1/3; Technical 4 1/2.

The Coordinators were also asked the "Most difficult obstacles for coordinators to overcome in obtaining evaluations?" to which they answered, "Getting qualified evaluators, scheduling available time, distributing materials, getting evaluators to complete the evaluation forms correctly."

In order to determine approximately how much time Coordinators had to spend processing a film for the Phase One evaluations, they were asked to indicate the "Average amount of time spent on Phase One Evaluations Per Film," in regard to the various routines they followed. They provided the following information:

Film viewed by coordinator	44 min.
Making contacts to get specialists to evaluate the films:	
Content Specialists	24 min.
Audience Specialists	24 min.
Technical Specialists	16 min.
Arrangements for Viewing (travel, preparation for delivery, set up projector, etc.)	46 min.
Actual viewing time spent with evaluation specialists	48 min.
Synthesizing Evaluations into the Report Form	60 min.
Preparing film, evaluations, reports, etc., before shipping for return	42 min.
Average Total Time Per Film	5 hours, 51 min.

VII. Problems Which Have Confronted the Project

One hindrance to the speed with which the project has been able to move forward has been the project's inability to obtain qualified evaluators not only to select films to be sent to Japan--but also to evaluate the Japanese science films received. Getting one science specialist for one or two films is not difficult, but three evaluators for possibly several films is a different story. A major factor concerning our inability to attract qualified evaluators was our limited budget which would not permit the project to pay even a token fee to the evaluators.

Securing the aid of teachers in-the-field and especially obtaining student reactions is difficult. This is primarily due to the fact that teachers in this country, unlike their Japanese counterparts, enjoy working in a democratic atmosphere; thus, we cannot tell a teacher that they are to use such-and-such a film and provide us with their evaluative reactions and, as well, those of their students. Instead, we seek to find teachers who are interested in using these films, when they will appropriately integrate with the units they are teaching, and strongly request that they secure reactions from their students. Securing the assistance of these science teachers has mainly been handled by audiovisual directors at the building and district levels. It should be noted, as a credit to the science education profession, that most people contacted to help provide evaluations have been willing to share their time and expertise with the only reward for them being an opportunity to view some new materials produced in a foreign land which pertain to their professional interests.

Another problem which has persistently hampered the project is availability of quality translations for the Japanese-narrated films. Not only is it costly--approximately $25.00 per thousand words translated--but it is difficult to find competent translators who not only have efficient ability in expressing ideas in English, but who also have an understanding of science topics. Also, the printed

translated scripts which are produced to be used with the films place an extreme burden on the viewer who is required to constantly keep shifting his eyes up and down, from the script to the screen, in an attempt to keep his reading of the script synchronized with the visual sequences.

In order to cope with this problem of printed scripts, ASFA has, on a trial basis, recorded from the printed scripts--on cassette tapes--which are then used in conjunction with their representative films. The response to these pilot tapes, even though they cannot be kept in perfect synchronization, has been enthusiastic and the U.S. project plans to record additional tapes for those films which have received high evaluative ratings and which have been well received by science educators in this country. In comparison, Japan has used a more sophisticated system for handling translations and sound tracks. Apparently, this is due to the budgeting they have been able to provide for this phase of their program and the conditions under which they operate. They are spending well over ten times the U.S. commitment for translations and have placed magnetic striping on the U.S. films--synchronizing the translated sound track on the magnetic striping with the film. This has been facilitated through the Japanese movie industry by using the same system that they use to convert the dialog on U.S. entertainment--Hollywood-type--films. Incidentally, this procedure is so successful that the director of the Japanese motion picture guild informed us that, "Many Japanese people believe that John Wayne speaks Japanese." Also, there are more magnetic type 16mm projectors available in Japan and since this type of audiovisual equipment generally comes from a centrally located pool rather than from within the individual school buildings, their distribution of mag-striped films, with appropriate projection equipment, is facilitated.

Another significant problem which has affected the speed with which the project has been able to progress on both sides of the Pacific is the limitation of having only one print of each title exchanged, available for the evaluative process.

Of early concern at the outset of the project was the amount of films which had to be previewed in order to obtain enough films to meet the obligations of the project. Approximately 500 films were previewed and evaluated by the U.S. before selections were made and films sent to Japan. It should be noted that the Project received excellent cooperation from the American producers who readily provided preview prints, facilitated--in many cases by reducing the cost--the purchase of the films for sending to Japan, as well as providing television rights for use of some of these materials in Japan.

VIII. Benefits, Conclusions, and Possible Future Activities

The Project is still not finished, but as we round that bend there are some values that can be cited. Many of the films the United States has received in this project provide important insights and glimpses into the cultural aspects of Japan, a country which is quickly attaining the status of a world power. The Japanese people, their customs, occupations, and technology are portrayed over and over in sequences from many of the films. Also, there is a wealth of information provided on the natural history of Japan, their parks, lakes, mountains, coasts, and wild-life. Certainly, there is much to be gained from a study of these films from the technical aspect--such as their patience and painstaking devotion to obtaining an exact and complete record of phenomena as they unfold--as well as the rich and vivid coloration they incorporate in their photography.

Within the entire U.S.-Japan Cooperative Science Program, this is the only project that deals with the area of science education, and specifically exchanging instructional science materials. It is believed that this exchange of materials has much to contribute to science education in the U.S. Although the collection of evaluative data from Phase Two--teachers and students in the field--is far from complete, an early appraisal of received evaluations, especially in the category of the films' "overall quality," appears to indicate that there is a highly positive

relationship between the "overall" ratings by science teachers in the field with the "overall" ratings of the Phase One evaluation specialists.

Another sign which may be interpreted as an indication of the value ascribed to the Project may be evidenced in the action taken by both the U.S. and Japan administrators of this project. Even though the Project is officially ended with only wrap-up work to be completed, and no additional funding at this time being provided by either the National Science Foundation or the Japan Society for the Promotion of Science for extension of this project, it was agreed by both the agencies administering the project that an attempt should be made to maintain this friendly cooperation between both countries by continuing to exchange, on a limited scale (5 to 10 per year), good science films selected from available sponsored films. Also, it was agreed that both administering agencies would continue to exchange information and data about the audiovisual media exchanged between the two countries.

The American Science Film Association, wishing to get as much mileage out of these exchanged materials as is possible, is in the process of developing plans for the loan of the films on a rental basis that will be sufficient to cover distribution costs. It is their desire to make these materials available for use by schools, museums, and other organizations just as soon as the evaluation phases of the Project are completed. After the project has been completed, ASFA will publish a catalog of the Japanese materials in which it plans to include both descriptive and evaluative information.

Possibly the experience from this project can serve as a model for other foreign educational materials exchanges. Although there have been several commercial safaris for the purpose of bringing foreign films to the U.S. educational marketplace, this project is the first educationally-sponsored endeavor to facilitate the cooperative exchange of educational materials between the U.S. and another country. If this project turns out to be as beneficial as early experiences tend

to indicate, this venture may not only serve to document a cooperative exchange of science materials between the U.S. and Japan, but could be the model for expanding such cooperative efforts to include several other appropriate countries. Nor does such an expansion necessarily have to be limited to a horizontal extension which would involve more countries in the exchange of science materials, but conceivably it could be enlarged vertically within each of the selected countries to go beyond the science realm to be inclusive of other curricular areas as well.

Not only would such efforts be capable of bringing some of the best ideas and instructional materials productions into the hands of educators in this country for studying the concepts, viewpoints, methodologies, and production techniques, but it would permit the U.S. to display its expertise in these areas by being able to expand its distribution of such materials. At the very least, such exchanges can serve, at the international level, to establish and strengthen understanding and cooperation between people, professions, and countries throughout the world.

APPENDIX 1

FILM EVALUATION FORM *

* The first page and a half plus the evaluator identification is used for Phase One evaluations.

The entire form is used for Phase Two evaluations.

AMERICAN SCIENCE FILM ASSOCIATION
United States - Japan Science Film Exchange Project
FILM EVALUATION FORM*

1. Film Title: _____. Film Number ___.
2. Broad Subject or Content Area Classification (e.g. Biology) _____.
3. Specific Unit of Study within Subject Area (e.g. Ecology, and/or Animal habits) _____
_____.
4. Purpose (Complete by *writing* one or more purposes for this film. Also, *rate* by number how effectively the film achieves the stated purpose.)

(Circle One)

	Low				High
a) To inform (e.g. facts and understandings of basic principles, etc.) _____	1	2	3	4	5
b) To change or persuade (e.g. appreciations, attitudes, etc.) _____	1	2	3	4	5
c) To teach how to (e.g. skills, critical thinking, etc.) _____	1	2	3	4	5
d) Other . . . _____	1	2	3	4	5

5. Basic Utilization (Complete by rating how effective the film would be for *each* of the specified utilizations below)

	Low				High
a) To introduce topic	1	2	3	4	5
b) To develop central ideas of topic	1	2	3	4	5
c) To summarize or conclude topic	1	2	3	4	5
d) To explain small segments of a topic	1	2	3	4	5

6. Recommended Audience Levels (*Check all* appropriate levels and *circle the most* appropriate)

Pre ___, Pri ___, Mid ___, Int ___, JH ___, SH ___, Col - Undergrad ___, Col - Grad ___, Adult - Teacher Educ ___, Adult - Special or Professional ___, Adult - General _____.

	Low				High
7. Content (e.g. is accurate, important, useful, up-to-date, etc.) . .	1	2	3	4	5
8. Audience Suitability (e.g. meets the needs and interests of intended group, is appropriate in length, vocabulary, pacing) . .	1	2	3	4	5
9. Structure (e.g. has organization, editing, continuity, length, etc).	1	2	3	4	5
10. Picture Quality (e.g. has clarity, appropriate visuals, framing, color, etc.)	1	2	3	4	5
11. Sound Quality (e.g. audibility, background music, and effects; *consider voice fidelity, lip sync., etc., only if in English*) . .	1	2	3	4	5
12. Effectiveness of the photographic techniques employed (*list* technique used - e.g. time lapse, high speed, close-up, microphotography, models, animation, color, etc., and *rate* its effectiveness) Photo Technique(s)					
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

13. If any of the above items, 6 through 12, have been rated by circling a "1" or "2" please indicate the degee to which the film's usefulness has been impaired by circling the appropriate word or phrase below:

a) not at all; b) only slightly; c) significantly; d) seriously.

(OVER)

* Developed by:
Ed Newren, October, 1969

14. Treatment (briefly describe the method used in treating the content - e.g. cartoon style, dramatization, factual analysis, illustrated lecture, documentary, etc.)

15. Narration - *if in Japanese:*

	Rating Low				High
How useful is film without English narration?	1	2	3	4	5
How beneficial is accompanying printed or recorded English script?	1	2	3	4	5
Considering this film's usefulness to science teachers, indicate, in your opinion, the value of reproducing this film with an English sound track	1	2	3	4	5

16. Overall Estimate of Film's Value (if narration is in Japanese, include in your consideration the value of the accompanying printed or recorded English script which would need to be used instead of the Japanese narration) 1 2 3 4 5

17. Evaluator's Comments (please refer to and *cite specific examples* from within the film - include omission(s) of information normally covered in the scope undertaken by this film, errors in content, existence of bias, lack of balance, outstanding strength(s) and limitation(s), etc.)

18. Specific Reactions by Science Teacher (*rate* the following general statements concerning the film and its applicability to your teaching situation)

a) Usefulness as a teaching material 1 2 3 4 5

b) Appropriateness of length 1 2 3 4 5

c) Appropriateness of content to the unit within the curriculum where the film would be most useful (i.e. curriculum oriented) 1 2 3 4 5

d) Appropriateness for use in class (*circle one of the following--* to replace; to supplement) materials produced for the same purpose which are available and of which you are aware 1 2 3 4 5

If possible, please specify title(s), producer, and type (e.g. 16mm film, filmstrip, etc.) of material.

e) Appropriateness of the difficulty level regarding the content and/or concept(s) in relation to the intended audience 1 2 3 4 5

f) Usefulness as an instructional tool as verified by observed student behavior 1 2 3 4 5

g) Appropriateness as a substitute for experiments or demonstrations. 1 2 3 4 5

h) Practicability (i.e. in close touch with students' life, experience, and interests) 1 2 3 4 5

i) Appropriateness for expanding and enriching students' sphere of experience 1 2 3 4 5

j) Rating, if applicable, of film's value in a teaching situation based on follow-up activity (e.g. performance test and/or individual interview with students, etc.) 1 2 3 4 5

If possible, please provide a copy of test used or a brief description of the particular follow-up procedure used.

k) Suggested utilization--methods for integrating into science teaching (e.g. independent study, motivate class discussion, use as example for duplicating an experiment, etc.)

19. Students' Reactions--For use with students in science classes, science clubs, or special science interest groups, etc.

(Please ask the following questions and tally the responses. Do not permit students to respond more than once to each question. The tally may be handled in any manner convenient for you--e.g. merely request a show of hands)

a) Which word or group of words best expresses how you feel about this question... the film presented the content and/or concepts in such a way that understanding was facilitated . . .

EXTREMELY WELL	Number of boys _____ ;	Number of girls _____
PARTIALLY	Number of boys _____	Number of girls _____
HARDLY AT ALL	Number of boys _____	Number of girls _____

b) Which word or group of words best expresses how you feel the film integrated with what you were, or had, studied . . .

EXTREMELY WELL	Number of boys _____ ;	Number of girls _____
PARTIALLY	Number of boys _____ ;	Number of girls _____
HARDLY AT ALL	Number of boys _____ ;	Number of girls _____

c) The word or group of words which best expresses the level of the subject matter covered in this film is . . .

DIFFICULT	Number of boys _____ ;	Number of girls _____
ORDINARY	Number of boys _____ ;	Number of girls _____
EASY	Number of boys _____ ;	Number of girls _____

d) The word or group of words which best expresses how the film captured and held your interest is . . .

EXTREMELY WELL	Number of boys _____ ;	Number of girls _____
PARTIALLY	Number of boys _____ ;	Number of girls _____
HARDLY AT ALL	Number of boys _____ ;	Number of girls _____

(OVER)

e) Which word or group of words best expresses how you feel your understanding and outlook (philosophy) toward the topic of this film was expanded and/or enriched . .

GREATLY	Number of boys _____ ;	Number of girls _____
PARTIALLY	Number of boys _____ ;	Number of girls _____
HARDLY AT ALL	Number of boys _____ ;	Number of girls _____

f) Which word or group of words best expresses how you feel that your understanding about Japanese culture and customs has been expanded and enriched . . .

GREATLY	Number of boys _____ ;	Number of girls _____
PARTIALLY	Number of boys _____ ;	Number of girls _____
HARDLY AT ALL	Number of boys _____ ;	Number of girls _____

Grade level(s) of students in group from which above responses were tallied _____.

Total number of students in group from which above responses were tallied _____.

20. Significant student comments after viewing this film.

Evaluator's name _____.

Evaluator's Department and Major Area of Specialization (and/or Teaching)

_____.

Evaluator's School _____.

School Address _____ _____.
(Street) *(City and State)*

Date of evaluation _____.

APPENDIX 2

FILM REPORT FORM

Bibliographic information which is not obtainable from the film itself (generally due to language difficulty or absence) is obtained from the Japanese distributor of the film. (See Appendix 3)

AMERICAN SCIENCE FILM ASSOCIATION

United States - Japan Science Film Exchange Project

FILM REPORT FORM

Film Title: _____. Film Number _____.

Series Title: _____.

Running Time (minutes) _____. Number of reels _____.

Color _____, Black & white _____, Sound _____, Silent _____.

Narration: English _____, Japanese _____, Other _____, Silent _____.
If Japanese, accompanied by _____ printed, _____ recorded, _____ or both, English script.

Production date: _____, Release date: _____, Copyright date: _____.

Producer: _____

Address: _____

Sale Price: $ _____.

Loan Source: _____

Address: _____

Rental price $ _____ for _____ days usage.

Subject Area(s) - Broad Classification: _____

Specific Units of Study: _____

Purpose: _____

_____

Audience Level: Pre ___, Pri ___, Mid ___, Int ___, JH ___, SH ___, Col - Undergrad ___, Col - Grad ___, Adult - Teacher Educ ___, Adult - Special or Prof ___, Adult-Gen ___.

Content Description:

Basic Utilization:

Content rating: 1 2 3 4 5

Audience suitability rating: 1 2 3 4 5

Structure rating: 1 2 3 4 5

Picture quality rating: 1 2 3 4 5

Sound quality rating: 1 2 3 4 5

Effectiveness of photo techniques: 1 2 3 4 5

Usefulness impaired by any above low ratings:
a) not at all; b) only slightly; c) significantly; d) seriously.

Treatment:

If narration in Japanese, rating of usefulness without English narration 1 2 3 4 5

Rating of usefulness of accompanying printed or recorded English script 1 2 3 4 5

Rating of the value of reporduction of this film with an English sound track 1 2 3 4 5

Overall Evaluative Rating: Poor ___, Fair ___, Average ___, Good ___, Excellent ___.

Comments:

Restrictions:

Content Specialist Evaluator _____

Title _____

Institution _____

Audience Specialist Evaluator _____

Title _____

Institution _____

Production Specialist Evaluator _____

Title _____

Institution _____

Coordinator _____

Title _____

Institution _____

Date _____

APPENDIX 3

FILM DISTRIBUTOR'S INFORMATION CHECK SHEET

Used to collect information from the Japanese film distributors.

AMERICAN SCIENCE FILM ASSOCIATION

United States - Japan Science Film Exchange Project

FILM DISTRIBUTOR'S INFORMATION CHECK SHEET

* *Note: If possible, please use the English language when writing information requested below. Thank you for your cooperation!*

Film Title: _____. Film Number: _____

Series Title,(if part of a series): _____

Physical Format: ____minutes; ___silent; ____sound; ___color; ___b&w.

Sale Price (state in United States currency): Color $_____. Black & white $_____.

Narration: Available in the following languages *(please specify - e.g. Japanese, English, French, German, Spanish, etc.)*

Producer's Name *(i.e. person or organization responsible for content of film)*:

Date Produced: _____. Date Released: _____. Copyright Date: _____.

Distributor (with franchise to sell in the United States):

Address:

Duplicate Prints: are available ____; are not available ____.

Replacement Footage: is available ____; is not available ____.

Cost of replacement footage (state in United States currency) $_____.

Source if different than distributor listed above:

Pre-print Materials *(e.g. sound track and all footage used in the production of the finished film product)*: are available ____; are not available ____.

Restrictions for Use in the United States *(e.g. Television usage, etc.)*:

Descriptive Materials (please provide in the most feasible form available, all descriptive literature pertaining to this film--especially that which relates to content, audience, and level of understanding):

Additional Information - Should the American Science Film Association need to contact your organization for further information, contact should be made with:

Name: _____. Title: _____.

Organization: _____.

Address: _____

_____.

Information on this form was supplied by: _____.

Title: _____. Date: _____.

Please return this form to: American Science Film Association, 7720 Wisconsin Avenue, Bethesda, Maryland, 20014.

APPENDIX 4

UNITED STATES SCIENCE FILMS SENT TO JAPAN

UNITED STATES FILMS SENT TO JAPAN

1967

Chemical Families (MLA) *	16mm
Electrochemical Cells (MLA)	16mm
Acid-base Indicators (MLA)	16mm
Gas Pressure & Molecular Collisions (MLA)	16mm
Ionization Energy (MLA)	16mm
Catalysis (MLA)	16mm
Frames of Reference (MLA)	16mm
Coulomb's Law (MLA)	16mm
Straight-line Kinematics (MLA)	16mm
Inertia (MLA)	16mm
Periodic Motion (MLA)	16mm
Limit (MLA)	16mm
Volume by Shells (MLA)	16mm
What is Area? (MLA)	16mm
Sea Surface Meteorology (MLA)	16mm
Exploring the Human Nervous System (Churchill Films)	16mm
Tissues of the Human Body (Churchill Films)	16mm
Drugs and the Nervous System (Churchill Films)	16mm
Sound Waves & Stars: The Doppler Effect (Bailey Film Assoc)	16mm
The Birth and Death of Mountain (Bailey Film Assoc)	16mm
What's under the Ocean? (Bailey Film Assoc)	16mm
Flight of Birds (Bailey Film Assoc)	16mm
Chemical Man (Graphic Films Corp.)	16mm
Eclipse of the Quiet Sun (Douglas Aircraft Co.-Film & TV Comm.)	16mm
Solar Eclipse Expedition 1966 (U.S. Atomic Energy Comm.)	16mm
Clean Air is a Breeze (Sandia Corp.)	16mm
Next - The Men (Hughes Aircraft)	16mm
Secrets of the Ice (McGraw-Hill)	16mm
Dark Line to the Planets (Penn. State Univ.)	16mm
How Solid is Rock? (EBEC)	16mm
Population Ecology (EBEC)	16mm
The Beach - A River of Sand (EBEC)	16mm
Close-up of the Moon (National Aeronautics and Space Admin)	16mm
Assignment: Shoot the Moon (National Aeronautics and Space Admin.)	16mm
A View of the Sky (National Aeronautics and Space Admin)	16mm
Mitosis and Meiosis (Indiana Univ. A-V Center)	16mm
Characteristics of Plants and Animals (Indiana Univ. A-V Center)	16mm
Wild River (EBEC)	16mm
Equilibrium (MLA)	16mm
Nitric Acid (MLA)	16mm

* U.S. producer and/or distributor's name given in parenthesis.

Great is the House of the Sun (National Aeronautics and Space Admin.) 16mm

A Function is Mapping (MLA) 16mm

Infinite Acres (MLA) 16mm

Volume of a Solid of Revolution (MLA) 16mm

The Definite Integral (MLA) 16mm

Time, Lines and Events (Churchill Films) 16mm

Choices (Aluminum Co. of America) 16mm

Trees Forever (Crown Zellerbach Corp.) 16mm

Steel on the Rouge (Ford Motor Co., Public Relations) 16mm

Grand Canyon (Association Films) 16mm

History, Layer by Layer (McGraw-Hill) 16mm

The Incredible Machine (American Telephone & Telegraph Co.) 16mm

Eye for Tomorrow (Penn State Univ.) 16mm

Man Made Diamond (General Electric) 16mm

Graham's Law (Penn State Univ.) 16mm

Crookes Tubes (Penn State Univ.) 16mm

Buffer Action (Penn State Univ.) 16mm

Reaction Kinetics (Penn State Univ.) 16mm

Electrode Potentials (Penn State Univ.) 16mm

Gas Diffusion (Penn State Univ.) 16mm

Ionic Equilibrium (Penn State Univ.) 16mm

1968

Pelican Island 16mm

How a Hamburger Turns Into You (Wexler Film Prod.) 16mm

The Embattled Cell (Wexler Film (Prod.) 16mm

Waves Across the Pacific (McGraw-Hill) 16mm

The Cooper's Craft (Colonial Williamsburg Inc.) 16mm

Art Designs Using Cathode Rays (Paul E. Stephens) 16mm

Mr. Simplex Saves the Aspidistra (MLA) 16mm

Let Us Teach Guessing (MLA) 16mm

Energy and Life (MLA) 16mm

I Maximize (MLA) 16mm

Area Under a Curve (MLA) 16mm

Solar Radiation (1) Sun and Earth (MLA) 16mm

Formation of Raindrops (MLA) 16mm

Exploring the Milky Way (MLA) 16mm

A Radio View of the Universe (MLA) 16mm

Rocks for Beginners (MLA) 16mm

Igneous Rock (MLA) 16mm

Fish, Moon and Tides: The Grunion Story (Academy Film) 16mm

What is Mountain? (National Park Service) 16mm

Check and Balance in Nature (MLA) 16mm

Alaskan Earthquake (Dept. of Interior) 16mm

Eruption of Kilauea, 1959-60 (Dept. of Interior) 16mm

Home Fires (Mental Health Board of New York) 16mm

Bold New Approach Parts I & II (Nat.Inst.of Mental Health) 16mm

Fire Science (Churchill Films) 16mm

Boy to Man (Churchill Films) 16mm

Girl to Woman (Churchill Films) 16mm

About the Human Body (Churchill Films) 16mm

Introduction to Reaction Kinetics (Chem. Material Study) 16mm

The Hydrogen Atom--As Viewed by Quantum Mechanics (Adv.Ver.) (Chem Educ. Material Study) 16mm

Chemical Bonding (Chem. Educ. Material Study) 16mm

Bromine - Element from the Sea (Chem.Educ.Material Study) 16mm

Biochemistry and Molecular Structure (Chem. Educ. Material Study) 16mm

Vanadium - A Transition Element (Chem. Educ. Material Study) 16mm

Crystals and Their Structure (Chem. Educ. Material Study) 16mm

Molecular Spectroscopy (Chem. Educ. Material Study) 16mm

Gases and How They Combine (Chem. Educ. Material Study) 16mm

Electric Interactions in Chemistry (Chem. Educ. Materials Study) 16mm

Molecular Motions (Chem. Educ. Materials Study) 16mm

Shapes & Polarities of Molecules (Chem. Educ. Materials Study) 16mm

A Research Problem: Inert Gas Compounds (Chem. Educ. Materials Study) 16mm

Synthesis of an Organic Compound (Chem. Educ. Material Study) 16mm

Lesson 3 - Teacher Training Introduction to "Chemical Bonding" (Chem. Educ. Material Study) 16mm

Lesson 11 - Teacher Training Introduction to "Reaction Kinetics" (Chem. Educ. Material Study) 16mm

Change of Scale (MLA) 16mm

Random Events (MLA) 16mm

Vector Kinematics (MLA) 16mm

Universal Gravitation (MLA) 16mm

Principles of Electricity (General Electric) 16mm

Planetary Circulation (MLA) 16mm

Equations (McGraw-Hill) 16mm

Associativity (McGraw-Hill) 16mm

Magnetic Force (McGraw-Hill) 16mm

The Flaming Sky (McGraw-Hill) 16mm

The Hidden Earth (McGraw-Hill) 16mm

The Nearest Star (McGraw-Hill) 16mm

Oxygen Liberation by Isolation Chloroplasts - The Hill Reaction (Iowa State Univ.) 16mm

Photosynthetic Fixation of Carbon Dioxide (Parts I & II) (Iowa State Univ.) 16mm

The Flowering Stimulus (Iowa State Univ.) 16mm

Electron Microscopy (Iowa State Univ.) 16mm

Photomorphogenesis in Plants (Iowa State Univ.) 16mm

Polar Bear Pattern (Penn State Univ.) 16mm

Frog Egg I: First Cell Division to Early Neural Fold (Educational Service) 8mm

Frog Egg II: Development of the Body Regions (Educational Service) 8mm

Frog Egg III: Continued Development to Hatching (Educational Service) 8mm

Artificial Fertilization of Frog Eggs (Educational Service) 8mm

Frogs: Pituitary Preparation (Educational Service 8mm

Making Temporary Mounts 8mm

X-Ray Motion Pictures of the Foot (Educational Service) 8mm

Hele-Shaw Analog to Potential Flows: Part I (Educational Service) 8mm

Hele-Shaw Analog to Potential Flows: Part II (Educational Service) 8mm

Three Dimensional Boundary Layer Separation (EBEC) 8mm

Setting up the Balance (Doubleday) 8mm

Using the Balance (Doubleday) 8mm

Vernier Scale (Doubleday) 8mm

Paper Chromatography (Doubleday) 8mm

Paper Electrophoresis (Doubleday) 8mm

Ferromagnetic Domain Wall Motion (Ealing) 8mm

Resolving Power (Ealing) 8mm

Tacoma Narrows Bridge Collapse (Ealing) 8mm

Newton's First and Second Laws (Ealing) 8mm

Rotating Reference Frames (Ealing) 8mm

Black Widow Spider, Part 3 (Ealing) 8mm

Making Epidermal Peels (Penn State Univ.) 8mm

Looking at Materials - Composite (Penn State Univ.) VTR

Part I - Ovulation in the Frog (Penn State Univ.) VTR

Part II - Measurement of Heart Rate in the Frog (Penn State Univ.) VTR

1969

Plasma: The Fourth State of Matter (Bailey-Film Associates) 16mm

Erosion (Bailey-Film Associates) 16mm

The Ocean (Bailey-Film Associates) 16mm

The Incubator: (Classroom Science (Bailey-Film Associates) 16mm

Maya of Ancient and Modern Yucatan (Bailey-Film Associates) 16mm

Conserving our Natural Resources (Bailey-Film Associates) 16mm

The Aquarium: Classroom Science (Bailey-Film Associates) 16mm

Insect Metamorphosis (Bailey-Film Associates) 16mm

Hand Tools for Metalworking (Bailey-Film Associates) 16mm

Hand Tools for Woodworking (Bailey-Film Associates) 16mm

The Earth's Movements (Coronet Films) 16mm

Lightning and Thunder (Coronet Films) 16mm

Animal Hide and Seek: Camouflage for Beginners (Coronet Films) 16mm

Why Animals Live Where They Do (Coronet Films) 16mm

Crystals and Their Growth (Coronet Films) 16mm

Darwin and the Theory of Natural Selection (Coronet Films) 16mm

Electricity from Chemical (Coronet Films) 16mm

North American Regions: The Intermountain Highlands (Coronet Films) 16mm

Desert Dwellers: Plants and Animals (Coronet Films) 16mm

Plant Nutrient and Growth (Coronet Films) 16mm

North American Regions: The Atlantic and Gulf Coastal Plains (Coronet Films) 16mm

Inertial Mass and the Laws of Motion (Coronet Films) 16mm

Evolution of Man (Coronet Films) 16mm

Geometry: Inductive and Deductive Reasoning (Coronet Films) 16mm

Plant-Animal Communities: Ecological Succession (Coronet Films) 16mm

Exploring the Atomic Nucleus (Coronet Films) 16mm

Viruses: Threshold of Life (Coronet Films) 16mm

Toward Inquiry (EBEC) 16mm

The Chromosomes of Man (EBEC) 16mm

The Work of the Heart (EBEC) 16mm

If You Could See the Earth (EBEC) 16mm

Flow Instabilities (EBEC) 16mm

Midwest-Heartland of the Nation (EBEC) 16mm

Army Ants: A Study in Social Behavior (EBEC) 16mm

Sets and Number (McGraw-Hill) 16mm

Inverse Operations (McGraw-Hill) 16mm

Commutativity (McGraw-Hill) 16mm

The Active Sun (McGraw-Hill) 16mm

Vitamins From Food (Wexler Film Prod.) 16mm

Intertie (Bonneville Power Admin) 16mm

Animal Secrets: How the Mind Begins (Graphic Curriculum) 16mm

Combustion Techniques in Liquid Scintillation Counting (U.S. Atomic Energy Comm.) 16mm

Laboratory of the Body (Wexler Film Prod.) 16mm

(ABC) Airborne Control Survey System (U.S. Geological Survey) 16mm

The Lead Matrix (Lead Industry Assoc.) 16mm

DNA: Blueprint for Life (John Wiley & Sons, Inc.) 16mm

Nuclear Magnetic Resonance (John Wiley & Sons, Inc.) 16mm

Ultimate Speed (Educational Services, Inc.) 16mm

Maine's Harvesters of the Sea (Bay State Film Prod.) 16mm

Audio Tutorial System (Purdue Univ. A-V Center) 16mm

Coho (Michigan Dept. Natural Resource) 16mm

Solar Radiation (2) The Earth's Atmosphere (McGraw-Hill) 16mm

Velocity Distribution of Atoms in a Beam (Educational Resources Inc.) 16mm

Food for a Modern World (Wexler Film Prod.) 16mm

Archeology: Pursuit of Man's Past (Stanton Films)	16mm
The American Desert (Stanton Films)	16mm
Desert Insect (Stanton Films)	16mm
Thermionic Emission of Electron (Educational Services, Inc.)	16mm
Momentum of Electron (Educational Services, Inc.)	16mm
Bragg Reflection Educational Services, Inc.)	16mm
Winds and Their Causes (2nd Ed) Coronet Films)	16mm
Symmetry (Polytechnic Inst. of Blyn)	16mm
Happy Family Planning (Wexler Film Prod.)	16mm
Star Seekers: A Brief History of Astronomy (Fine Arts Prod.)	16mm
Adaptation to a Marine Environment (Lamont Geo. Obser. Columbia)	16mm
Miracle of the Mind (McGraw-Hill)	16mm
Power From Fusion (McGraw-Hill)	16mm
Information Explosion (Ohio State Univ Dept of Photo & Cinema)	16mm
Teacher and Technology (Ohio State Univ Dept of Photo & Cinema)	16mm
Living Coast Line Series (Parts 1 - 7) (International Comm. Films)	8mm
Basic Electricity & Magnetism Series (Parts 1 - 15) (Doubleday-ICF Films)	8mm
Structure and Function of Nerves Series (Parts 1 - 5) (Doubleday)	8mm
Automotive Mechanics Series: Engine Rebuilding (II) (Parts 1 - 14)(McGraw-Hill)	8mm
Process of Proof, No. 1, Atoms and Molecules (ETV-Assoc of Metro. Cleveland)	VTR
Process of Proof, No. 18, Conservation (ETV-Assoc of Metro. Cleveland)	VTR
Life in the Ocean, Unit I, Lesson 2 (Western Video Industries)	VTR
Simple Machines, Part II, Lesson 71 (Western Video Industries)	VTR
Patterns I, Lesson 2 (NET-Ind. Univ. AV Center)	VTR
Let's Investigate Shadows (NET-Ind. Univ. AV Center)	VTR
Patterns in Arithmetic V (NET-Ind. Univ. AV Center)	VTR

APPENDIX 5

JAPANESE SCIENCE FILMS RECEIVED BY THE UNITED STATES

JAPANESE SCIENCE FILMS RECEIVED BY THE UNITED STATES

1967

1	Selected Lactobacillus Acidolphilus	16mm +
2	Mechanism of Life	16mm +
3	Electron Microscope	16mm +
4	Discovery of Zero	16mm +
5	Application of Oil Pressure	16mm +
6	Life is Born	16mm +
7	Hydraulic Pressure	16mm
8	Observation of Leaf Rolling Weevils	16mm +
9	Plants of Nasu Heights	16mm
10	Yeast	16mm +
11	Salmon in Japan	16mm +
12	Blue Lake	16mm +
13	Springtime	16mm
14	National Parks of Japan:	+
	Part I Nature of Kyushu	16mm
	Part II Sea of Honshu	16mm
	Part III Mountains of Honshu	16mm
15	Nature in Hokkaido	16mm
16	Forest	16mm
17	Frozen Fish	16mm +
18	New Wrapping	16mm +
19	A Beautiful Country	16mm +
20	Fishing Net of the World	16mm +
21	Modernizing Japanese Agriculture	16mm
22	Exploring the Coastline	16mm +
23	Science Festival	16mm
24	Raicho	16mm +
25	Mosquito	16mm +
26	Colloid	16mm +
27	Evaporation	16mm +
28	Chemical Equilibrium	16mm +
29	Undersea Meadows	16mm
30	Momentum	16mm
31	Chromosomes of Man	16mm +
32	An Approach to Predicting Earthquakes	16mm +
33	Energy and Water	16mm +
34	Wave	16mm +
35	Adhesion	16mm +
36	Chemistry of Solution	16mm +
37	Insects in Mountain Streams	16mm +
38	Rats	16mm +
39	Crystals of Snow	16mm +
40	Origin of Rain	16mm +
41	Strength of Materials	16mm +
42	Principle of Metal Cutting for Practice	16mm +

1968

43	Observation of Boiling	16mm +
44	Movement of the Pendulum	16mm +
45	X-Ray and the Crystal	16mm
46	Force and Movements	16mm +

+ = Media Units already evaluated for Phase One

47	Structure of Materials	16mm +
48	Electron Movement in the Tube	16mm +
49	Kinetic Energy	16mm +
50	Laws of Falling Motion	16mm
51	Light and Color	16mm +
52	Movement of Molecules	16mm +
53	Frictional Electricity	16mm +
54	Discharge	16mm +
55	Frictional Force	16mm +
56	Radio Wave	16mm +
57	Plants and Their Evolution	16mm +
58	Deciduous Trees and Evergreen Trees	16mm +
59	From Monkey to Man: How Man Evolved	16mm +
60	Insects Bodies	16mm
61	Plankton in Swamps and Lakes	16mm +
62	A Crab's Life	16mm +
63	Genetics - Study of DNA	16mm +
64	Circulation of Blood	16mm +
65	Inorganic Nutrition of Plants	16mm +
66	Photosynthesis	16mm +
67	Biological Sketch of the Sea	16mm
68	Life of Water-Birds	16mm +
69	The Dynamic Flow of Life	16mm
70	Secret in the Hive	16mm +
71	Solar Radiation	16mm +
72	Geological Structure and Crust Movements	16mm
73	Ore Deposits	16mm +
74	The Igneous Rock	16mm +
75	Automation	16mm +
76	Blueprints in Modern Industry	16mm +
77	How to Trace Faults in Mechanisms	16mm +
78	Forging	16mm +
79	Non-Destructive Inspection	16mm +
80	Babies' Blood Types	16mm +
81	Laser	16mm
82	Spinning a Century	16mm +
83	To Build Gigantic Ships	16mm +
84	Fight Against Cancer	16mm +
85	Chemical Change and Temperature	16mm +
86	Wind and Glass	16mm
87	Tokyo Moves Skyward - The Kasumigaseki High-Rise Building: Part 2	16mm +
88	Snow Damage	16mm +
89	When you Mix - See What Happens	16mm
90	Challenge to the Refuse	16mm +
91	Whaling in the Antarctic Ocean	16mm +
92	A Frog	16mm +
93	Eye of the Road	16mm

94	Parabolic Motion	VTR
95	Circular Motion	VTR
96	Oscillation	VTR
97	Wave Motion	VTR
98	Polarization of Light	VTR
99	Blood Stream	8mm +
100	Function of the Lungs	8mm +
101	Structure and Germination of Rice Seeds	8mm +
102	Birds Wintering, Part I	8mm +
103	Birds Wintering, Part II	8mm +
104	Liquids, Part I	8mm +
105	Liquids, Part II	8mm +
106	Properties of Gases	8mm +

1969

107	Crystallization of Savour	16mm +
108	Science of Silk	16mm +
109	Function	16mm
110	Set	16mm
111	Principle of A.C. Motor	16mm
112	Semi-Conductors	16mm
113	How Things Burn	16mm
114	Speed of Chemical Change	16mm
115	Phenomenon of Wetting	16mm
116	Chemistry in Nature	16mm
117	Torrential Rains	16mm
118	Mountain Changes	16mm
119	Moraine	16mm
120	Development of X-Ray Astronomy	16mm
121	Weather Forecasting for Tomorrow	16mm +
122	Movement of the Earth	16mm
123	Fish Habitats	16mm
124	Insect Pest of Rice	16mm
125	Throng of Plants	16mm
126	The Study of Crickets	16mm
127	Japanese Monkeys	16mm
128	Grasshoppers	16mm
129	Evolution of Respiration	16mm
130	Study of Ferns	16mm
131	The Sun and Plants	16mm
132	Fish Farming in Japan: Improving the Environment for Fish	16mm +
133	Fish Farming in Japan: Building Future Fishing Grounds	16mm
134	Structure of Fish	16mm
135	Ingenious Process of Inflammation	16mm
136	Industrial Use of Micro-Organisms	16mm
137	White Cabbage Butterfly	16mm
138	Expedition to the Antarctic Pole	16mm
139	Hydroponics	16mm
140	Computer Simulation of Order-Disorder Phenomena	16mm +

141	Poem of the Young Hearts (Growth and Life of a Blind Youth)	16mm
142	Dairy Farming in the Mountains	16mm
143	Steel for Prosperity	16mm
144	Children and Art	16mm
145	Deformation and Drag of Body, Parts I, II, III, IV	8mm +
146	Things and Their Weight, Parts I, II, III	8mm +
147	Solution, Parts I, II, III	8mm +
148	Human Body - 1, Parts I, II, III, IV, V, VI	8mm +
149	Human Body - 2, Parts I, II, III, IV, V, VI	8mm +
150	Matter and State, Parts I, II, III, IV, V, VI	8mm +
151	Accelerated Motion	VTR
152	Energy	VTR
153	Diffraction	VTR
154	Interference	VTR
155	Glasswork	VTR
156	Clouds	VTR
157	Ancient Japanese Tombs	16mm
158	History of Japanese Agri culture	16mm